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EXAMINER

LU, FRANK WEI MIN

ART UNIT

PAPER NUMBER

1634

DATE MAILED: 02/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/050,102

Applicant(s)

ANDERSON ET AL.

Examiner

Frank W Lu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 November 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 52,53 and 57-63 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 52,53 and 57-63 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 1/10/2002 (original) is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. Applicant's response to the office action filed on November 23, 2004 has been entered. The claims pending in this application are claims 52, 53, and 57-63. Rejection and/or objection not reiterated from the previous office action are hereby withdrawn in view of the amendment filed on November 23, 2004.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 53 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Applicant is referred to the interim guidelines on written description published on December 21, 1999 in the Federal Register at Volume 64, Number 244, pp.71427-71440.

Vas-Cath Inc. v. Mahurkar, 19USPQ2d 1111 (Fed. Cir. 1991), clearly states that "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention. The invention is, for purposes of the 'written description' inquiry, whatever is now claimed." *Vas-Cath Inc. v. Mahurkar*, 19USPQ2d at 1117. The specification does not "clearly allow persons of ordinary skill in the art to

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recognize that [he or she] invented what is claimed". *Vas-Cath Inc. v. Mahurkar*, 19USPQ2d at 1116.

Although the claim 53 describes detecting a band of particle in the lower region by a detection technique which can not have been detected if the band is in the upper region by the same detection technique, the specification does not provides adequate written descriptions to show what kind of detection techniques can be used to detect a band of particle in the lower region wherein the detection techniques can not be used if the band is in the upper region. The claimed inventions as a whole are not adequately described if the claims require essential or critical elements which are not adequately described in the specification and which are not conventional in the art as of Applicants effective filing date. Possession may be shown by actual reduction to practice, clear depiction of the invention in a detailed drawing, or by describing the invention with sufficient relevant identifying characteristics (as it relates to the claimed inventions as a whole) such that a person skilled in the art would recognize that the inventor had possession of the claimed invention. *Pfaff v. Wells Electronics, Inc.*, 48 USPQ2d 1641, 1646 (1998). The general knowledge and level of skill in the art do not supplement the omitted description because specific, not general, guidance is what is needed.

With limited disclosure provided by the specification, the skilled artisan cannot envision a detection technique recited in claim 53 and therefore conception is not achieved until reduction to practice has occurred, regardless of the complexity or simplicity of the method used. Adequate written description requires more than a mere statement that it is part of the invention and reference to a potential method of identifying it. See *Fiers v. Revel*, 25 USPQ2d 1601, 1606

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(Fed. Cir. 1993) and *Amgen Inc. v. Chugai Pharmaceutical Co. Ltd.*, 18 USPQ2d 1016 (Fed. Cir. 1991).

One cannot describe what one has not conceived. See *Fiddes v. Baird*, 30 USPQ2d 1481, 1483. In *Fiddes*, claims directed to mammalian FGF's were found to be unpatentable due to lack of written description for that broad class. The specification provided only the bovine sequence. Applicant is reminded that *Vas-Cath* makes clear that the written description provision of 35 U.S.C. §112 is severable from its enablement provision (see page 1115).

Response to Arguments

In page 4, third to six paragraph of applicant's remarks, applicant argues that "[T]he specification at several locations mentioned detecting the band of particles by optical techniques such as detecting fluorescence, light scattering, etc. For example, see the Abstract or Summary of the invention, first paragraph".

This argument has been fully considered but it is not persuasive toward the withdrawal of the rejection. First, if the particles are labeled with a fluorescent dye as applicant suggests, the fluorescence band formed by fluorescent particles can be detected by a fluorescent detection technique no matter this fluorescence band is located in the upper region or the lower region of the centrifuge tube. Therefore, the fluorescent technique is not a detection technique that can detect a band if the band is in the lower region of a centrifuge tube and cannot detected a band if the band is in the upper region of a centrifuge tube. Second, the Abstract or Summary of the invention, first paragraph as suggested by applicant does not provide a detection technique that can detect a band if the band is in the lower region of a centrifuge tube and cannot detect a band if the band is in the upper region of a centrifuge tube.

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4. Claims 62 and 63 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

To the extent that the claimed composition/or methods are not described in the instant disclosure, claims 62 and 63 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention, since a disclosure cannot teach one to make or use something that has not been described.

Newly added claims 62 and 63 recite “the particles are concentrated in a non-terminal portion of the lower region” and “a physical barrier is present that prevents the two different fluids from contacting each other”. However, the specification fails to define or provide any disclosure to support such claim recitation. Furthermore, in applicant’s remarks filed on November 23, 2004, applicant does not indicate which part in the specification supports such claim recitation.

MPEP 2163.06 notes “If NEW MATTER IS ADDED TO THE CLAIMS, THE EXAMINER SHOULD REJECT THE CLAIMS UNDER 35 U.S.C. 112, FIRST PARAGRAPH - WRITTEN DESCRIPTION REQUIREMENT. *IN RE RASMUSSEN*, 650 F.2D 1212, 211 USPQ 323 (CCPA 1981).” MPEP 2163.02 teaches that “Whenever the issue arises, the fundamental factual inquiry is whether a claim defines an invention that is clearly conveyed to those skilled in the art at the time the application was filed...If a claim is amended to include subject matter, limitations, or terminology not present in the application as filed, involving a departure from, addition to, or deletion from the disclosure of the application as filed, the examiner should conclude that the claimed subject matter is not described in that application.” MPEP 2163.06 further notes “WHEN AN AMENDMENT IS FILED IN REPLY TO AN OBJECTION OR REJECTION BASED ON 35 U.S.C. 112,

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FIRST PARAGRAPH, A STUDY OF THE ENTIRE APPLICATION IS OFTEN NECESSARY TO DETERMINE WHETHER OR NOT "NEW MATTER" IS INVOLVED. *APPLICANT SHOULD THEREFORE SPECIFICALLY POINT OUT THE SUPPORT FOR ANY AMENDMENTS MADE TO THE DISCLOSURE*" (emphasis added).

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 61 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Claim 61 is rejected as vague and indefinite. According to claim 52, the air bubble is located on the lower region. However, according to claim 61, the air bubble separates the middle region from the lower region and suggests that the air bubble is not located on the lower region. Therefore, claim 52 and claim 61 do not correspond each other. Please clarify.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 52 and 57-62 are rejected under 35 U.S.C. 102(e) as being anticipated by

Vlasselaer (US Patent NO. 5,663,051, filed on December 11, 1995).

Vlasselaer teaches separation apparatus and method.

Regarding claims 52 and 57-60, Vlasselaer teaches a centrifuge tube comprising an upper region, a middle region and a lower region wherein an inner diameter of said upper region is larger than an inner diameter of said lower region, wherein said upper region is separated from said lower region by said middle region having a decreasing diameter from said upper region toward said lower region or having a diameter less than said upper region but greater than said lower region as recited in claim 52 (see Figures 1A-1C and 2A-2B). Since Vlasselaer teaches that the fluid sample 18 such as human cells (see examples 1 and 2 in columns 35-38) to be separated is layered on the top of density gradient solution 16 such as CsCl (see column 13, second paragraph) inside the tube so that at least about 1 mm of density gradient solution remains between the sample and the top of the constriction member after layering (see column 8, fourth and fifth paragraphs), Vlasselaer disclose that the sample is a biological sample as recited in claim 57 wherein at least two different fluids (ie., the sample and density gradient solution) are present, each in different region as recited in claim 59 and wherein said two different fluids are held separately with substantially no diffusion between said two different fluids before centrifugation as recited in claim 60. Since Vlasselaer teaches that the tube and its contents are then subjected to centrifugation at a centrifugal force and duration to pellet cells having densities greater than the density of the gradient solution (see column 8, fourth and fifth paragraphs), Vlasselaer discloses centrifuging said sample in said tube to concentrate said particles (ie., the cells) as recited in claim 52. Although Vlasselaer does not teach that said lower region has a sufficiently small bore to hold an air bubble in it with an aqueous solution above and below it, this limitation is a functional limitation of the centrifuge tube taught by Vlasselaer. Since there

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is no structural difference between the centrifuge tube recited in claim 52 and the centrifuge tube taught by Vlasselaer, the centrifuge tube taught by Vlasselaer must have the same function as the centrifuge tube recited in claim 52 so that lower region of the centrifuge tube taught by Vlasselaer has a sufficiently small bore to hold an air bubble in it with an aqueous solution above and below it.

Regarding claim 61, since the air bubble is not a structural limitation of claim 52, claim 61 is anticipated by Vlasselaer.

Regarding claim 62, since Vlasselaer teaches that, after centrifugation, components having densities greater than that of the gradient solution are found in a pellet 20 (see column 8, lines 50-62 and attached Figure 1B with the examiner's handwritings from Vlasselaer), the particles (ie., components having densities greater than that of the gradient solution) are concentrated in a non-terminal portion of the lower region.

Therefore, Vlasselaer teaches all limitations recited in claims 52 and 57-62.

Response to Arguments

I. In page 5, fourth paragraph of applicant's remarks, applicant argues that "[W]hile the constriction 12 in Vlasselaer provides a smaller internal diameter and apparently interpreted as a 'middle portion'. both upper portion 28 and the lower portion 26 have the same diameter as particularly shown in Figures 1a, 1b, 1c and suggested in Figures 2-5 and 7 of Vlasselaer. Present claim 52 recites, 'wherein an inner diameter of said upper region is larger than an inner diameter of said lower region'. Therefore, Vlasselaer does not anticipate the present claims.

These arguments have been fully considered but they are not persuasive toward the withdrawal of the rejection. First, although "both upper portion 28 and the lower portion 26 have

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the same diameter as particularly shown in Figures 1a, 1b, 1c and suggested in Figures 2-5 and 7 of Vlasselaer”, the lower portion 26 is not considered as either middle region or lower region in the rejection. Second, Vlassvlaer does teach a centrifuge tube comprising an upper region, a middle region and a lower region wherein an inner diameter of said upper region is larger than an inner diameter of said lower region (see attached Figure 1B with the examiner’s handwritings from Vlassvlaer).

II. In page 5, last paragraph bridging to page 6, first paragraph of applicant’s remarks, applicant argues that “there is no concentration of the cells so that one can readily detect that which is not easily detected otherwise. The separation of unwanted cells does not result in concentration of the wanted cells because of the excess amounts of liquid gradient material added. Even when recovered, Vlasselaer resuspends the wanted cells in a diluting liquid resulting in no net concentration. Claim 52 recites ‘A method for concentrating particles...’ and ‘(b) centrifuging said sample in said tube to concentrate said particle’ and the specification discusses concentration as a many fold concentration (thousands to a billion fold)”.

These arguments have been fully considered but they are not persuasive toward the withdrawal of the rejection because the concentration of the particle as argued by applicant is not a limitation of claim 52 and claim 52 only requires “to concentrate said particles”.

III. In page 6, second to last paragraphs of applicant’s remarks, applicant argues that: (1) the phrase “wherein said lower region has a sufficiently small bore to hold an air bubble in it with an aqueous solution above and below it” recited in claim 52 is not a functional limitation; (2) in

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view of column 7, line 55 to column 8, line 8 of Vlasselaer, the lower region of centrifuge tube taught by Vlasselaer does not have a sufficiently small bore to hold an air bubble.

These arguments have been fully considered but they are not persuasive toward the withdrawal of the rejection. First, since the phrase “wherein said lower region has a sufficiently small bore to hold an air bubble in it with an aqueous solution above and below it” recited in claim 52 only describes the ability of said lower region, this phrase must be a functional limitation of claim 52. Furthermore, applicant does not explain why the phrase “wherein said lower region has a sufficiently small bore to hold an air bubble in it with an aqueous solution above and below it” recited in claim 52 is not a function limitation. Second, the diameter of opening 14 formed by constriction member 12 (preferably about 0.5 cm) in column 7, line 55 to column 8, line 8 of Vlasselaer argued by applicant is not considered as the lower region of the centrifuge tube in the rejection (see attached Figure 1B with the examiner’s handwritings from Vlasselaer).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claim 58 is rejected under 35 U.S.C. 103(a) as being unpatentable over Vlasselaer (1995) as applied to claims 52 and 57-62 above, and further in view of Mason *et al.*, (US Patent NO. 5,612,040, filed on April 1995).

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The teachings of Vlasselaer have been summarized previously, *supra*.

Vlasselaer does not disclose that the particles are microorganisms such as viruses.

Mason *et al.*, teach that microorganisms such as viruses are purified by centrifugation (see example 1, columns 6 and 7).

Therefore, it would have been *prima facie* obvious to one having ordinary skill in the art at the time the invention was made to have performed the method recited in claim 58 wherein the particle are microorganisms as viruses in view of the patents of Vlasselaer and Mason *et al.*.

One having ordinary skill in the art would have been motivated to do so because Mason *et al.*, have successfully purified viruses by centrifugation and the simple replacement of one kind of sample (i.e., human cells taught by Vlasselaer) from another kind of sample (i.e., microorganisms taught by Mason *et al.*,) during the process for performing the method recited in claim 58 would have been, in the absence of convincing evidence to the contrary, *prima facie* obvious to one having ordinary skill in the art at the time the invention was made.

Furthermore, the motivation to make the substitution cited above arises from the expectation that the prior art elements will perform their expected functions to achieve their expected results when combined for their common known purpose. Support for making the obviousness rejection comes from the M.P.E.P. at 2144.06, 2144.07 and 2144.09.

Also note that there is no invention involved in combining old elements in such a manner that these elements perform in combination the same function as set forth in the prior art without giving unobvious or unexpected results. *In re Rose* 220 F.2d. 459, 105 USPQ 237 (CCPA 1955).

Response to Arguments

In page 7, second and third paragraphs of applicant's remarks, applicant argues that "[M]ason et al does not compensate for the basic deficiencies of Vlasselaer as stated above. Mason et al use conventional cylindrical centrifuge tubes. Accordingly, for the reasons given above, this rejection should also be withdrawn".

This argument has been fully considered but it is not persuasive toward the withdrawal of the rejection because Vlasselaer teaches all limitations recited in claims 52 and 57-62 (see above Response to Arguments on the rejection under 35 USC 102 (e)).

12. Claim 63 is rejected under 35 U.S.C. 103(a) as being unpatentable over Vlasselaer (1995) as applied to claims 52 and 57-62 above, and further in view of Smith (US Patent NO. 4,867,887, published on September 19, 1989).

The teachings of Vlasselaer have been summarized previously, *supra*.

Vlasselaer does not disclose that a physical barrier is present that prevents that two different fluids from contacting each other as recited in claim 63.

Smith teaches that the first layer of the thixotropic substance is positioned between the second layer of the newtonian substance and a blood sample received by the tube, prior to centrifuging the tube, and acts as a barrier between the second layer of the newtonian substance

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and the blood sample to prevent the intermixing or intermingling of the second layer and the blood sample (see column 2, lines 6-17).

Therefore, it would have been *prima facie* obvious to one having ordinary skill in the art at the time the invention was made to have performed the method recited in claim 63 wherein a physical barrier is present that prevents that two different fluids from contacting each other in view of the patents of Vlasselaer and Smith. One having ordinary skill in the art would have been motivated to do so because Mason *et al.*, have successfully used a layer of thixotropic substance as a physical barrier to separate a layer of newtonian substance and a blood sample (two different fluids) in order to prevent the intermixing or intermingling of the layer of the newtonian substance and the blood sample. One having ordinary skill in the art at the time the invention was made would have been a reasonable expectation of success to add a physical barrier between two different fluids to prevents that two different fluids from contacting each other.

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. No claim is allowed.


15. Papers related to this application may be submitted to Group 1600 by facsimile transmission. Papers should be faxed to Group 1600 via the PTO Fax Center. The faxing of such papers must conform with the notices published in the Official Gazette, 1096 OG 30 (November 15, 1988), 1156 OG 61 (November 16, 1993), and 1157 OG 94 (December 28, 1993)(See 37 CAR § 1.6(d)). The CM Fax Center number is either (703) 872-9306.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frank Lu, Ph.D., whose telephone number is (571)272-0746. The examiner can normally be reached on Monday-Friday from 9 A.M. to 5 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion, can be reached on (571)272-0782.

Any inquiry of a general nature or relating to the status of this application should be directed to the Chemical Matrix receptionist whose telephone number is (703) 308-0196.

Frank Lu
PSA
January 24, 2005


KENNETH R. HORLICK, PH.D.
PRIMARY EXAMINER

1/31/05